

REMARKS

Reconsideration of the above-identified patent application in view of the amendments above and the remarks following is respectfully requested.

Claims 1-44 are in this case. Claims 24, 30 and 44 have been rejected under § 112, first paragraph. Claims 1-44 have been rejected under § 112, second paragraph. Claims 1-14, 16, 17, 22 25, 29, 31-33, 38-41 and 43 have been rejected under § 102(b). Claims 15 and 42 have been rejected under § 103(a). Dependent claims 5, 16-19, 22, 23, 25, 26, 29, 30, 33, 34 and 39-44 have been canceled. Independent claims 1, 31 and 38 and dependent claims 2, 6, 7, 9, 11, 20, 21, 24, 27, 28 and 35 have been amended. New independent claims 45-48 have been added.

The claims before the Examiner are directed toward a peripheral device, of a host computer, that includes a microcontroller and two virtual devices. The first virtual device passes, to the microcontroller, commands of a first set from any user of the computer and preferably also commands of a second command set only from privileged users of the host computer. The second virtual device passes, to the microcontroller, commands of the second set from any user of the computer. The two virtual devices may be implemented in separate physical devices or, alternatively, may be implemented in a common physical device.

§ 112, First Paragraph Rejections

The Examiner has rejected claims 24, 30 and 44 under § 112, first paragraph, as failing to comply with the enablement requirement. Specifically the Examiner contends that the term LUN is not described in a way that would enable one of ordinary skill in the art to make the invention.

The Examiner's rejection is respectfully traversed. It is not necessary to describe the term LUN because the term LUN is a well-known term of art that means "logical unit number". Attached please find a copy of Revision 08b of a Working Draft Technical Report of the Accredited Standards Committee NCITS dated 06 November 2001. The Examiner's attention is respectfully directed to section 3.2 on page 3 in which a set of standard abbreviations, including LUN, are defined. Attached also please find a copy of page 532 of The Computer Desktop Encyclopedia (The Computer Language Company Inc., 1999), with a definition of LUN.

§ 112, Second Paragraph Rejections

The Examiner has rejected claims 1-44 under § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner has rejected claims 1-44 generally for reciting first and second virtual devices that sometimes are implemented in respective separate physical devices and sometimes are implemented in the same physical device. The Examiner's rejection is based on a standard definition of the term "virtual". The Examiner's rejection is respectfully traversed. The term "virtual device" is a well-known term of art that refers to a low-level software entity that appears to higher-level software as a physical device. Attached please find an example, dated February 20, 2004, of such a use of the term "virtual device" in a Unix context. Attached also please find copies of pages 971 and 973 of The Computer Desktop Encyclopedia (The Computer Language Company Inc., 1999). On page 971, the entry for "virtual device" points to the entry for "virtual peripheral" on page 973. A "virtual peripheral", as defined on page 973, is an example of one class of virtual devices, specifically, a peripheral device that is simulated by the operating system. This use in the art of the adjective

“virtual” as part of the term “virtual device” is consistent with the definition of “virtual” cited by the Examiner: a virtual device is “in essence or effect” a physical device as far as the higher-level software is concerned, without actually being a physical device. As such, two different virtual devices can be implemented either in two separate respective physical devices, as recited for example in claim 16 as filed, or in a common single physical device, as recited for example in claim 25 as filed.

The Examiner has rejected claim 21 similarly for reciting “virtual” multi-level LEDs. Claim 21 now has been amended by deleting the adjective “virtual”, both in the term “virtual multi-level LEDs” and in the term “virtual user switches”.

The Examiner has rejected claim 2 for not clarifying how the first virtual device can pass the second set of commands to the microcontroller. Claim 2 now has been amended to clarify this point. In addition to being operative to pass the first set of commands to the microcontroller, the first virtual device also is operative to pass commands of the second set to the microcontroller, but only when those commands are received from a privileged user of the host computer. Support for this amendment is found in the specification, in the description of virtual device **151** on page 13 lines 8-9:

Device **151** is a USB mass storage client, similar to client **131**...
in light of the description of USB mass storage client **131** on page 12 lines 4-7:

Operating systems **112** commonly limit the way mass storage class devices **131** can be accessed. For instance, in Windows, when the user of PC **110** does not have administrator privileges, s/he cannot send private commands **133** to USB mass storage client **131**.

The Examiner has rejected claim 4 on the grounds that the term “native command” is not described or defined in the specification. “Native command” is a well-known term of art that refers to a command that is directly executable by the hardware of a processing system. (A non-native command is a command that is

emulated by software that translates the command into one or more native commands.) See, for example, the use of the term “native command” in US Patent No. 5,673,255 column 5 lines 35-39:

...command module **208** performs any translation necessary from the native command set of competitive access provider switches **202** and **204** into the command language that control unit **202** of remote terminal 116 is expecting...

in US Patent No. 5,861,957 column 1 lines 33-46:

However, the control command system output from the data supply source such as the host computer is a command system inherent to each printer maker and therefore, usually, the printer of one maker cannot be made to function as the printer of another maker, and interchangeability is low and an improvement therein has been waited for.

For this reason, in apparatuses of this type, there has been put into practical use an emulation-corresponding printer in which when a command system inherent to a printer is the native command, there is carried an emulation program for processing the command of a command system differing from this native command so that a printing process conforming to the command of a discrete system can be executed. (emphasis added)

in US Patent No. 6,006,256 column 7 lines 57-58:

...the native command format employed by broadcast controller **460**.

and in US Patent No. 6,125,384 column 16 lines 54-55:

...the native command interface to FlowMark application **342**...

For the Examiner’s convenience, copies of these four patents are attached.

The Examiner has rejected claim 18 on the grounds that the term “reversibly operationally connecting” is not defined in the specification. The Examiner’s rejection is respectfully traversed. “Reversibly operationally connecting” is defined implicitly in the specification, in the description on page 15 lines 10-12 and page 16 lines 7-19, of the operation of switch **202** of Figure 4A. According to page 15 lines 10-12,

A switch **202** is used to enable HID device **230** only when needed by the user – *i.e.* when working in non privileged mode on PC **110**.

Switch **202** is closed to reversibly operationally connect USB HID sub-interface **230** to USB interface **157** when the user works in non-privileged mode, and otherwise is open.

The Examiner has rejected claims 24, 30 and 44 on the grounds that the term LUN is not defined in the specification. The Examiner's rejection is respectfully traversed. As discussed above in the context of the § 112, first paragraph rejections, LUN is a well-known term of art.

The Examiner has rejected claim 34 on the grounds that it is not clear where (in the first set or in the commands of the first set) the commands of the second set are embedded. The rejection of claim 34 on § 112, second paragraph grounds is discussed below in the context of the § 102(b) rejections.

§ 102(b) Rejections – Rasmussen et al. '146

The Examiner has rejected claims 1-7, 25, 29, 31 and 33 under § 102(b) as being anticipated by Rasmussen et al., US Patent No. 6,502,146. The Examiner's rejection is respectfully traversed.

Claims 25, 29 and 33 have been canceled, thereby rendering moot the Examiner's rejection of these claims.

Applicant has rendered moot the Examiner's rejection of independent claim 1 by amending this claim to include the limitations of claims 16-18. Correspondingly, claims 16-18 have been canceled. With independent claim 1 allowable in its present form, it follows that claims 2-7 that depend therefrom also are allowable.

The limitations of claim 17 are identical to the limitations of claim 5. Therefore, claim 5 has been canceled and claims 6, 7, 9 and 11 have been amended to depend from claim 1.

Applicant has rendered moot the Examiner's rejection of independent claim 31 by amending this claim to include the limitations of claim 34. The rejection of claim 34 on § 112, second paragraph grounds has been addressed by introducing commas to step (f) to clarify that the commands of the second set are embedded in the commands of the first set. The latter amendment is supported in the specification on page 8 lines 12-15:

The method includes the further step of configuring the common physical device to recognize commands of the first command set that have embedded within themselves commands of the second command set. (emphasis added)

(The word "themselves" is plural and so must refer to the commands of the first command set rather than to the first command set.) Correspondingly, claim 34 has been canceled and claim 35 has been amended to depend directly from claim 31. In addition, claim 33 that is inconsistent with claim 34 also has been canceled.

§ 102(b) Rejections – Applicant's Admitted Prior Art

The Examiner has rejected claims 1-14, 16, 17, 22, 31, 32, 38-41 and 43 under § 102(b) as being anticipated by Applicant's Admitted Prior Art. The Examiner's rejection is respectfully traversed.

Claims 16, 17, 22, 39-41 and 43 have been canceled, thereby rendering moot the Examiner's rejection of these claims.

As discussed above, independent claim 1 has been placed in condition for allowance by the inclusion therein of the limitations of claims 16-18. It follows that claims 2-14 that depend therefrom also are allowable.

As discussed above, independent claim 31 has been placed in condition for allowance by the inclusion therein of the limitations of claim 34. It follows that claim 32 that depends therefrom also is allowable.

Applicant has rendered moot the Examiner's rejection of independent claim 38 by amending this claim to include the limitations of claims 43 and 44. Correspondingly, claims 43 and 44 have been canceled. In addition, claims 39-42 that are inconsistent with claim 43 also have been canceled.

§ 103(a) Rejections – Applicant's Admitted Prior Art in view of Hanes et al. '725

The Examiner has rejected claims 15 and 42 under § 103(a) as being unpatentable over Applicant's Admitted Prior Art in view of Hanes et al., US Patent No. 6,813,725. The Examiner's rejection is respectfully traversed.

Claim 42 has been canceled, thereby rendering moot the Examiner's rejection of this claim.

As discussed above, independent claim 1 has been placed in condition for allowance by the inclusion therein of the limitations of claims 16-18. It follows that claim 15 that depends therefrom also is allowable.

New Claims

New independent claims 45-48 have been added.

New independent claim 45 is independent claim 1 as filed, including the limitations of claims 16, 17 and 19 as filed. Correspondingly, claim 19 has been canceled and claim 20 has been amended to depend from claim 45.

New independent claim 46 is independent claims 1 as filed, including the limitations of claims 16, 17, 22 and 23 as filed. Correspondingly, claims 22 and 23 have been canceled and claim 24 has been amended to depend from claim 46.

New independent claim 47 is independent claim 1 as filed, including the limitations of claims 25 and 26 as filed. Correspondingly, claims 25 and 26 have been canceled and claims 27 and 28 have been amended to depend from claim 47.

New independent claim 48 is independent claim 1 as filed, including the limitations of claims 25, 29 and 30 as filed. Correspondingly, claims 29 and 30 have been canceled.

The Examiner has noted that claims 18-21, 23, 24, 26-28, 30, 34-37 and 44 would be allowable if rewritten to overcome the rejections under § 112, second paragraph and to include all of the limitations of the base claim and any intervening claims. As discussed above, the terms that the Examiner deemed unclear (“virtual device” in the claims generally, “virtual multilevel LEDs” in claim 21, “reversibly operationally connecting” in claim 18, “LUN” in claims 24, 30 and 44) either are terms of art or are defined in the specification, so that the only claim that would have needed to be rewritten to overcome the rejections under § 112, second paragraph is claim 34. Claim 1 as amended is claim 18 rewritten to include the limitations of base claim 1 and intervening claims 16 and 17. New claim 45 is claim 19 rewritten to include the limitations of base claim 1 and intervening claims 16 and 17. New claim 46 is claim 23 rewritten to include the limitations of base claim 1 and intervening claims 16, 17 and 22. New claim 47 is claim 26 rewritten to include the limitations of base claim 1 and intervening claim 25. New claim 48 is claim 30 rewritten to include the limitations of base claim 1 and intervening claims 25 and 29. Claim 31 as amended is claim 34 rewritten to overcome the rejections under § 112, second paragraph that are specific to claim 34 and to include the limitations of base claim 31. Claim 38 as amended is claim 44 rewritten to include the limitations of base claim 38 and intervening claim 43.

Disclaimer

Applicant has chosen to overcome the Examiner's rejections under § 102(b) and § 103(a), by amending the independent claims to include limitations of claims that were rejected only under § 112, only in order to expedite the prosecution. Applicant's decision not to address explicitly the rejections under § 102(b) and § 103(a) at this time should not be construed as a concession that the rejections under § 102(b) and § 103(a) are valid. Applicant reserves the right to defend the claims rejected under § 102(b) and § 103(a) in a continuation of the above-identified patent application.

Objections to the Specification

The specification has been objected to on the grounds that the term multi-LUN is used without explaining what a LUN is. As discussed above in the context of the § 112, first paragraph rejections, LUN is a well-known term of art.

The specification has been objected to on the grounds that the term virtual device is used without explaining any virtual characteristics that define the device. As discussed above in the context of the § 112, second paragraph rejections, the term "virtual device" is a well-known term of art.

The specification has been objected to for first teaching, in the paragraph beginning on page 1 line 30, that the autorun feature is not available in keychain storage devices and then teaching, on page 10 line 14 through page 12 line 17 and in Figures 1 and 2, that the use of an autorun feature was well-known in the prior art keychain storage devices..

Applicant's intent in the paragraph beginning on page 1 line 30 was to state, not that the autorun feature is not available in prior art keychain storage devices, but that the availability of the autorun feature of a prior art keychain storage device that

includes this feature depends on the operating system. This is what is stated on page 12 lines 8-10:

Operating systems **112** commonly also limit the autorun **134** feature to specific device types. Most operating system **112**, do not recognize an autorun feature in generic mass storage clients **131**. (emphasis added)

Page 2 line 3 now has been amended to clarify this matter.

No new matter has been added.

In view of the above amendments and remarks it is respectfully submitted that independent claims 1, 31, 38 and 45-48, and hence dependent claims 2-4, 6-15, 20, 21, 24, 27, 28, 32 and 35-37 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,


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